WHY MINNESOTA?

Creativity ★ Expertise ★ Collaboration

Why is Minnesota Perfect for Bioscience?

- Named America's Top State for Business by CNBC (2015)
- An innovation ecosystem and patent powerhouse
- Educated, skilled workforce with bioscience expertise
- A bio hub with highly developed sectors in:
  - Medical Devices
  - Biomaterials/Biofuels
  - Bio-Agriculture and Food
  - Bioinformatics/Digital Health
  - Pharma/Biologics
  - Animal Science

EMPLOYMENT AND ECONOMIC DEVELOPMENT
MINNESOTA

Why Minnesota?

- **1st** in the number of **medical device patents** per capita granted in 2015
- **2nd nationally** in **bioscience-related patents** per capita in 2015
- **4th** in the **number of bioscience patents** from 2011 to 2015

Source: U.S. Patent and Trademark Office (USPTO), using patent definitions by the USTPO and by the Battelle/BIO State Biosciences Jobs, Investments and Innovation Report (2014).

Why Minnesota?

Named America's Top State for Business by CNBC (2015)

Minnesota ranked highest overall based on 60 measures in 10 categories. We ranked among the top 10 states in:

• Education • Technology and Innovation • Quality of Life • Infrastructure • Economy

An Innovation Ecosystem and Patent Powerhouse

In Minnesota, you'll find remarkable potential for collaborators and partners in research, development and commercialization across all bioscience sectors.

The internationally renowned Mayo Clinic and the University of Minnesota form the state's strong bioscience backbone. The Mayo Clinic is developing a $6 billion Destination Medical Center in Rochester, Minn. Integral to it are incubators to turn clinical and research advancements into useful products and therapies.

And the University of Minnesota has developed the Biomedical Discovery District – a complex of the most advanced facilities for basic and translational research found anywhere in the country. It also operates the University's Biotechnology Resource Center and its Office for Technology Commercialization.

Both institutions are connected with The Hormel Institute, a state-of-the-art biomedical research center in Austin, Minn., where well over 100 scientists and collaborators conduct research to improve health. As part of a major expansion, The Hormel Institute is adding laboratories and staff and will grow to about 250 employees.

Partnerships and collaborations are the norm in Minnesota. Industry groups such as Medical Alley Association, academic institutions, government and businesses work closely together to foster a statewide support network and ecosystem of innovation.

Proof that it works can be seen in our patent statistics (see page 2).

Educated, Skilled Workforce with Bioscience Expertise

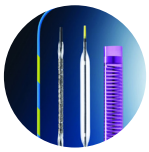
Minnesota has a large, specialized bioscience industry base with 48,000 jobs. A small, early-stage company in Minnesota has access to some of the most experienced clinical and regulatory experts in the world.

What's more, companies of all sizes can tap into the expertise they need at all stages – from basic research and discovery, through clinical trials and product testing to manufacturing and distribution.

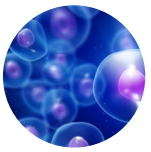
With our labor pool of 3 million people, Minnesota can deliver an educated, skilled workforce for any bioscience business at a competitive cost.

Education is the key to our talent pipeline. Minnesota ranks 2nd nationally in the percentage of the population with a high school degree or higher and 11th nationally in the percentage with a bachelor's degree or higher.

Why Minnesota?

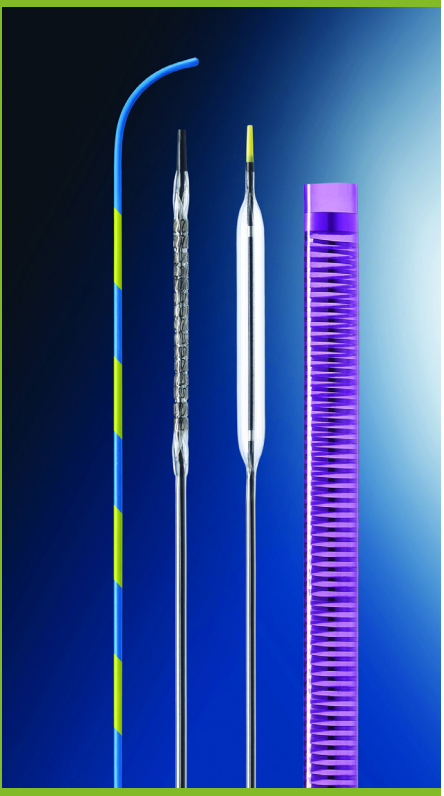







A Bio Hub with Six Highly Developed Sectors

Six sectors help make Minnesota an international bio hub. Undergirding them is a capacity for research, development and testing that's second to none.



MEDICAL DEVICES

As a pioneer in medical technology, Minnesota's history of developing and manufacturing medical devices and supplies dates back to the 1940s. Today, Minnesota ranks:

- 1st in its medical device presence – with three times the concentration of medical device industry employment as the national average
- 1st in the Midwest and second nationwide in medical device manufacturing employment, with 28,731 workers in 2014

Patents alone tell an important part of the story. According to the U.S. Trade and Patent Office, Minnesota ranks:

- 1st nationwide in medical device patents per capita in 2015
- 2nd in overall medical device patents (5,100) between 2011 and 2015
- 1st worldwide in patents (2,048) granted in Technology Class 607 (surgical light, thermal and electric applications) in 2015

Among the largest medical device manufacturing firms with headquarters or major operations in Minnesota are:

- Medtronic
- St. Jude Medical
- 3M Health Care
- Coloplast Corp.
- Smiths Medical ASD Inc.
- Boston Scientific Corp.
- Starkey Hearing Technologies
- Greatbatch Medical
- Cardiovascular Systems Inc.
- Vascular Solutions Inc.

Minnesota companies of all sizes advance through the U.S. Food and Drug Administration's (FDA's) medical device approval process faster than companies in other states. In fact, Minnesota remains the fastest medical technology hub for 510(k) clearances across all experience levels, according to Medical Alley Association. Globally, Minnesota companies topped the list of recipients of approvals and clearances in 2015.

Medical technologies consistently attract a large share of Minnesota's venture capital investment. In 2015, 35 percent of all venture capital investments in the state ($129.8 million) went to medical device companies. Minnesota companies have over 600 registrations in medical devices with the FDA (2016).

BIOINFORMATICS/DIGITAL HEALTH

Minnesota is becoming a bioinformatics and digital health powerhouse. Leading-edge research is being done by academic institutions and programs.

Meanwhile, private companies and other entities are developing products and services that use software technology in new ways. For example, they're helping medical providers monitor their patients' data remotely – and enabling consumers to make better health choices.

Among the many companies and organizations working in Minnesota in this area:

- Optum
- McKesson
- National Marrow Donor Program
- RedBrick Health
- Ability Networks
- Spok

BIO-AGRICULTURE AND FOOD

Minnesota has a long tradition of innovation in food production and is one of the top producers of food in the nation. Minnesota is:

- 1st in sugar beets, processed sweet corn and green peas
- 2nd in wild rice
- 3rd in dry beans and oats

And, Minnesota is the nation's fourth-largest exporter of agricultural goods ($7.35 billion), according to the Minnesota Department of Agriculture (2015).

Minnesota received 130 patents in food processes, compositions and products between 2011 and 2015, ranking third nationwide.

The nation's largest private company – Minnesota-based Cargill – as well as eight of the 17 Fortune 500 companies headquartered in Minnesota (2015) have operations related to the growth, production, safety, processing and distribution of food and other agricultural products and services:

- 3M
- Cargill
- CHS
- Ecolab
- General Mills
- Land O'Lakes
- Hormel Foods
- Mosaic
- Supervalu

Other top food producers, manufacturers and distributers with headquarters or major operations in Minnesota include:

- American Crystal Sugar Co.
- GNP Company
- Jennie-O Turkey Store
- MOM Brands
- Quality Pork Processors, Inc.
- Rosen's Diversified
- Schwan Food Co.

Why Minnesota?

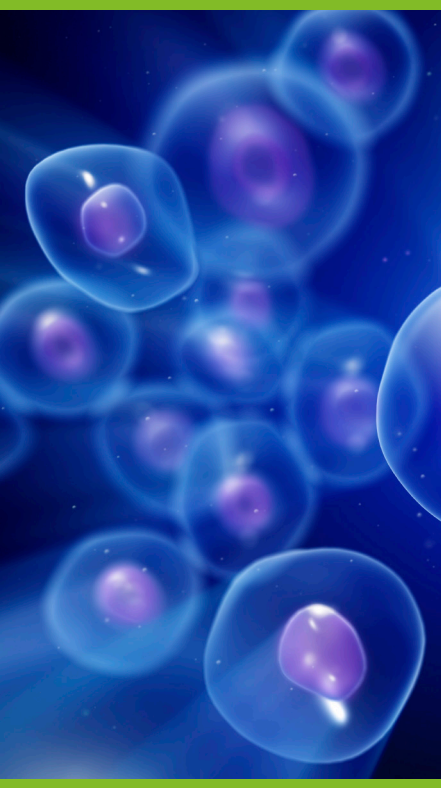
BIOMATERIALS/BIOFUELS

Minnesota is changing the way the country is producing and consuming energy, food and health products through biomaterials and biotechnology. The state was the first in the country to require a 5 percent biodiesel blend in most diesel fuels. Minnesota ranks first in the number of gas pumps (281) offering E85 (2016) and fourth in ethanol production capacity with 1,190 million gallons (2016).

The state is also home to internationally known biomaterials superpowers such as Cargill and 3M – and to a deep bench of smaller companies with big ideas of their own. NatureWorks LLC offers a family of commercially available biopolymers derived from 100 percent renewable resources. The company's products include apparel, bottles, films and textiles. And, Fremont Industries offers an entire line of bioaugmentation and nutrient additive products to enhance wastewater treatment.

Among the many companies producing biomaterials and biofuels in Minnesota are:

- 3M
- Advanced BioEnergy LLC
- Archer Daniels Midland (ADM)
- Cargill Biodiesel
- Denco II
- Gevo
- Granite Falls Energy LLC
- Green Biologics
- Green Plains Inc.
- Guardian Energy Holdings LLC
- Highwater Ethanol LLC
- Minnesota Soybeans Processors
- Nature Works LLC
- Poet
- Renewable Energy Group (REG)



PHARMA/BIOLOGICS

Minnesota has a growing number of companies and researchers focused on everything from human health microbiology and medical genomics to proteomics and stem cell research. *U.S. News and World Report* ranks the graduate program at the University of Minnesota's College of Pharmacy second in the country (2016).

Between 2011 and 2015, Minnesota entities registered 552 patents in drugs and bio compositions, ranking in the Top 15 nationally. Also, the state added 790 jobs in pharmaceutical and medicine manufacturing industries and ranks in the Top 15 nationally in numeric growth between 2010 and 2014.

More than 100 pharma/biologics companies have operations in Minnesota, including:

- 3M Drug Delivery Systems
- Abbott Laboratories
- Amerilab Technologies
- ANI Pharmaceuticals Inc.
- Bristol-Myers Squibb
- CIMA Labs
- Lifecore Biomedical
- Medtronic
- Pfizer Inc.
- Perrigo (formerly Paddock Laboratories Inc.)
- Pharmaceutical Specialties Inc.
- R&D Systems (Bio-Techne)
- SurModics
- Takeda Pharmaceuticals U.S.A.
- Upsher-Smith Laboratories Inc.

ANIMAL SCIENCE

From animal feeds to diagnostics and genetics, animal science is a thriving bioscience sector in Minnesota. Industry segments also include pharmaceuticals, nutritional supplements and vaccines.

Minnesota's strength in animal science is reflected in its top rankings in livestock and livestock products:

- 1st nationwide in turkeys raised
- Among the top producers of hogs (2nd); meat animals (3rd); cheese (6th) and milk (8th)

More than 40 animal health firms, large and small – as well as academic institutions – help make this sector vital. A sampling:

Animal Nutrition

- Archer Daniels Midland (ADM)
- Cargill Animal Nutrition and Feed
- Central Farm Service
- Land O'Lakes Purina Feed LLC

Animal Health Products

- Bimeda
- Epitopix LLC
- Merck Animal Health
- ProtaTek International Inc.

Animal Diagnostics/Genetics

- Babcock Genetics
- Newport Laboratories
- Nova-Tech Engineering
- Poultry Technical and Research Facility, University of Minnesota
- Swine Disease Eradication Center, University of Minnesota

The University of Minnesota's College of Veterinary Medicine ranks 9th among veterinary schools in the country (*U.S. News & World Report*, 2015).

Why Minnesota?

Valuable Incentives

When it comes to clean energy incentives, Minnesota offers a huge, nation-leading Bioeconomy Production Incentive Program to attract commercial-scale production in three areas: renewable chemicals, advanced biofuels and biomass thermal industries.

Minnesota also offers an attractive Angel Tax Credit to investors or investment funds that put money into startup companies focused on high technology. Minnesota is committed to helping businesses succeed and has many other incentive programs. Contact us for more information.

A Vast Network of Resources

Minnesota has a broad range of organizations and academic institutions focused on conducting bioscience research and working with businesses to improve bioscience technology and product development.

Industry associations, joint research collaborations and biotech business incubators include:

- The Hormel Institute/University of Minnesota-Mayo Clinic
- Medical Alley Association
- Minnesota Clinical Research Alliance (MCRA)
- Minnesota High Tech Association (MHTA)
- Minnesota Partnership for Biotechnical and Medical Genomics/University of Minnesota-Mayo Clinic
- Biotech incubators and accelerators such as the Mayo Clinic Business Accelerator, TreeHouse Health and Invenshure

University of Minnesota bioscience-related entities include:

- Biotechnology Resource Center
- Office for Technology Commercialization
- University of Minnesota Genomics Center
- Center for Mass Spectrometry and Proteomics
- Computational Genetics Laboratory
- Minnesota Stem Cell Institute
- Department of Bioproducts and Biosystems Engineering

STATEWIDE BUSINESS EXPERTISE

Minnesota DEED is the state's principal economic development agency. Our Business Development staff stand ready to assist with any bioscience business plans you might have.

EMPLOYMENT AND ECONOMIC DEVELOPMENT
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